Fig.1A

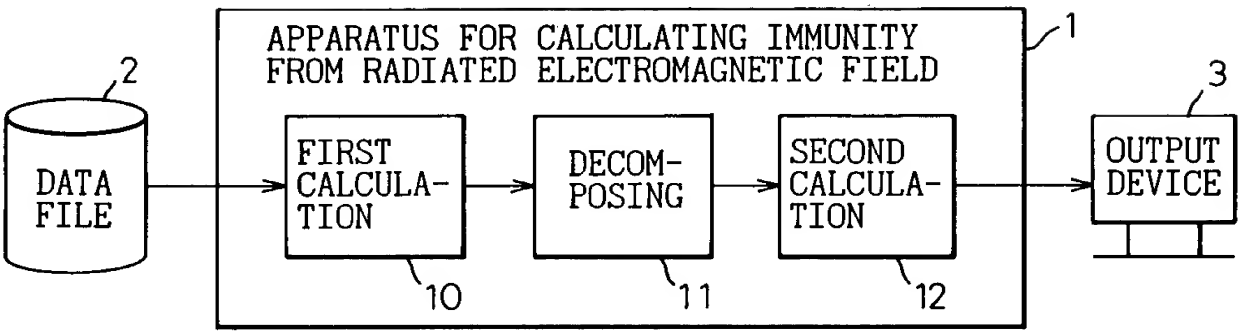


Fig.1B

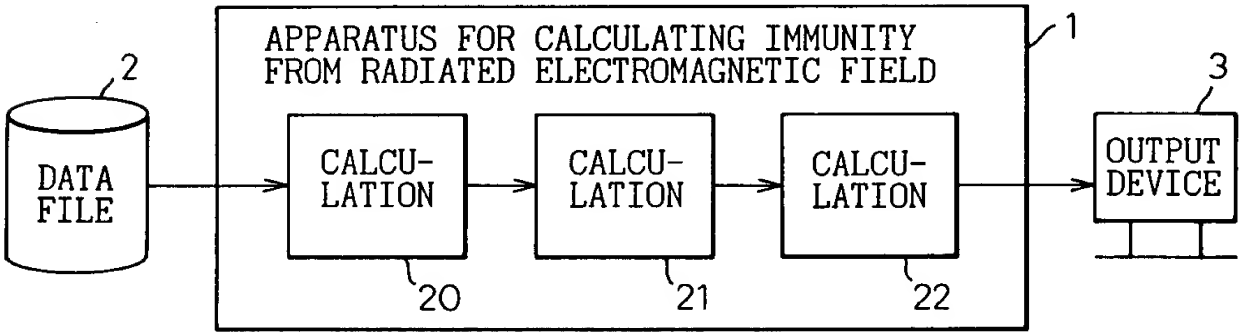


Fig.1C

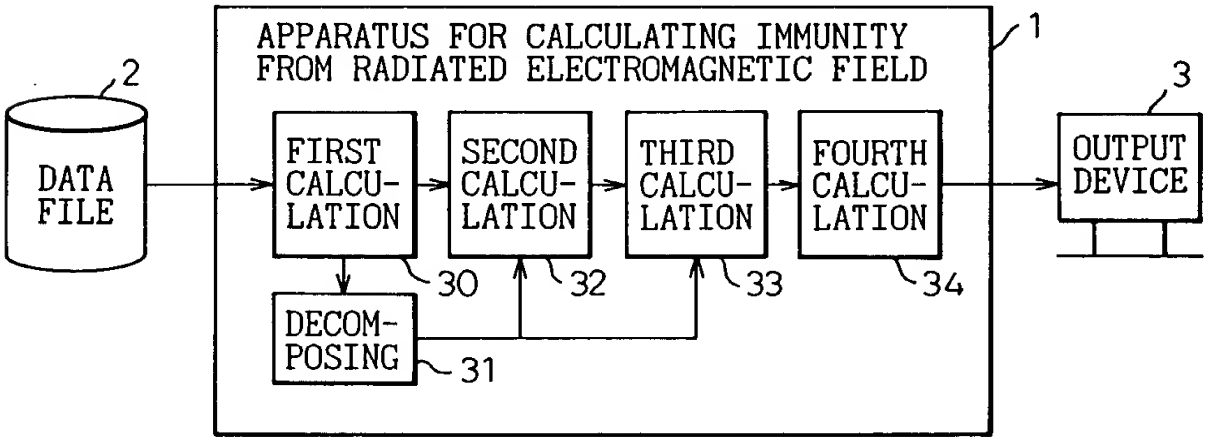


Fig.2

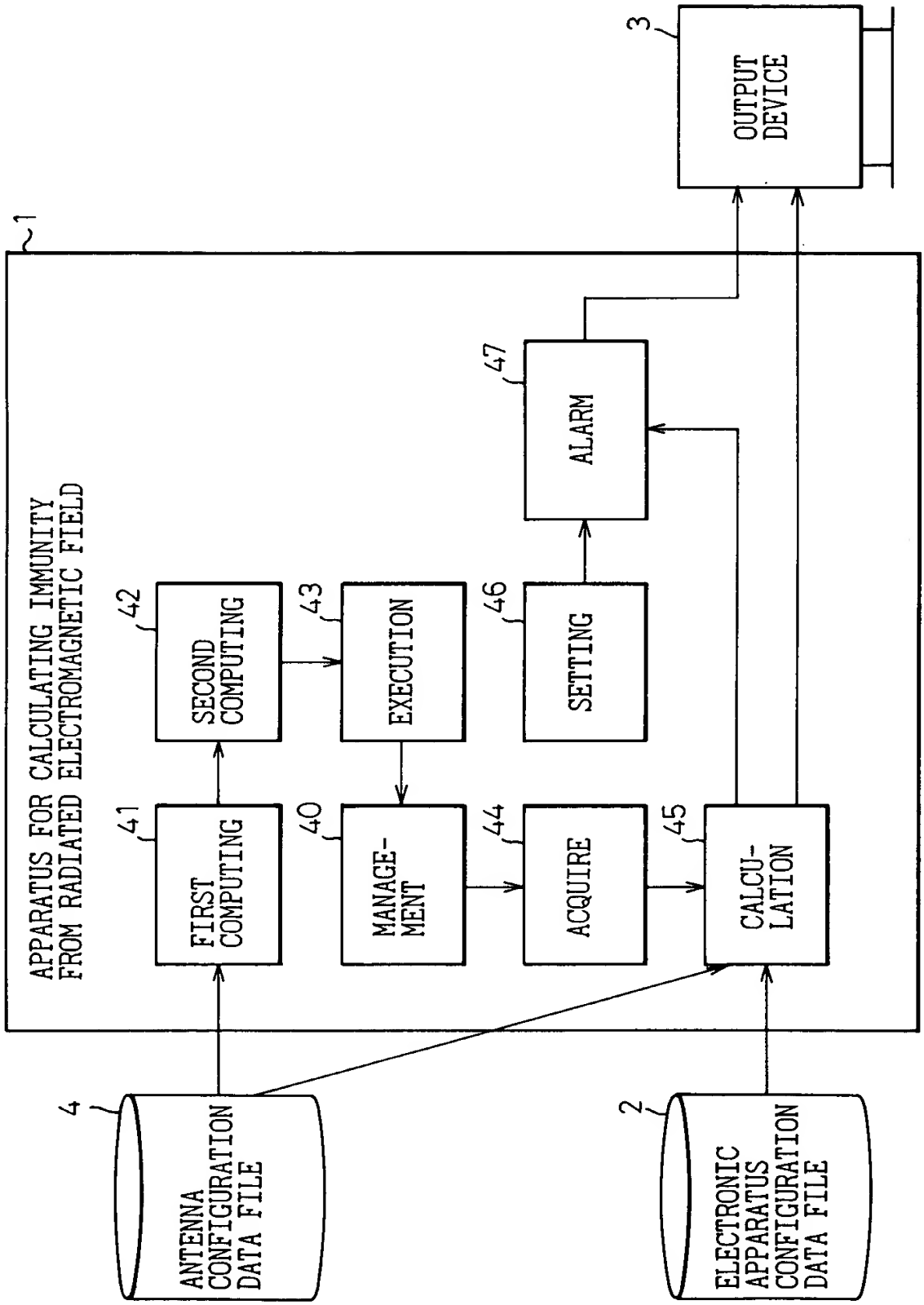
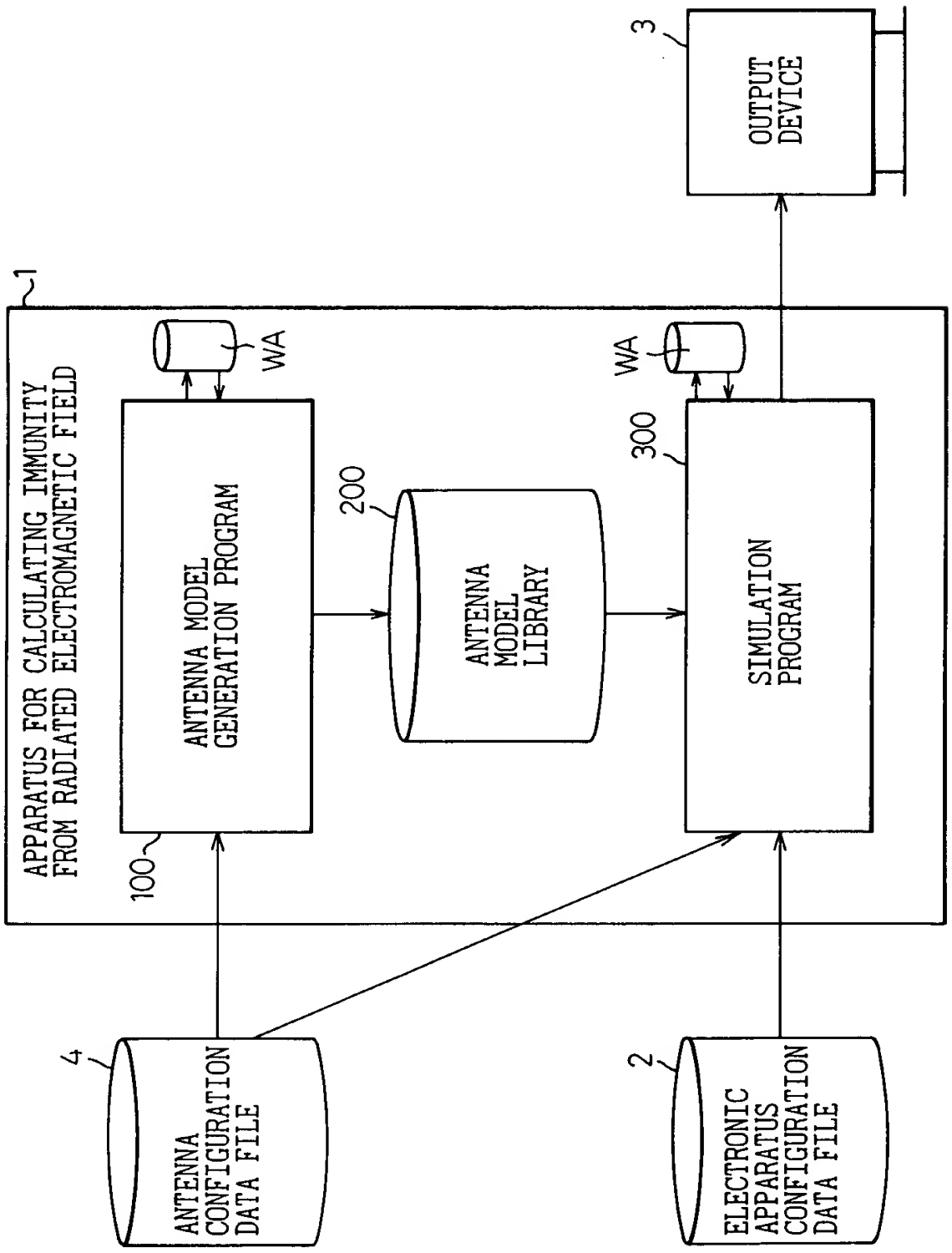


Fig.3



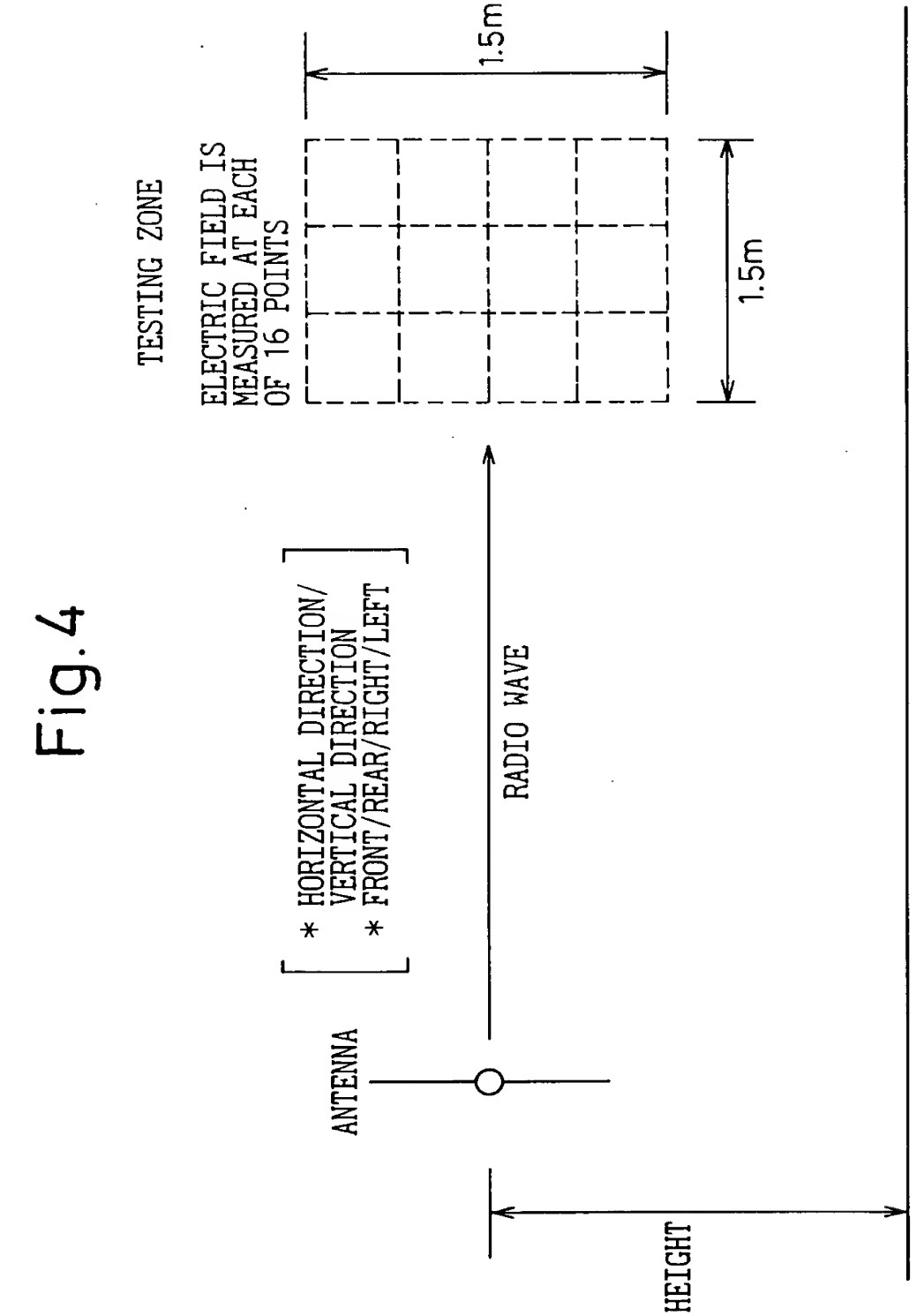


Fig.4

Fig. 5

ID	CLASS OF ANTENNA	DISTANCE	HEIGHT	MODULATION CONDITION	DIRECTION TO BE APPLIED	ALLOWABLE LEVEL	LOCATION OF UNIFORM ELECTRIC FIELD
A1	aaaaaa	L1	H1	M1	X1	Y1	Z1
A2	bbbbbb	L2	H2	M2	X2	Y2	Z2
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
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.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.

Fig.6A

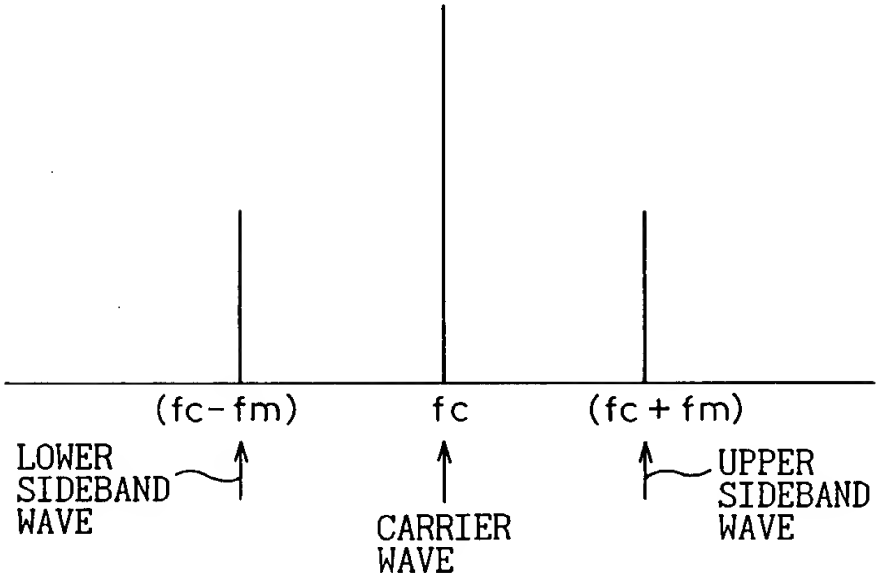

Fig.6B

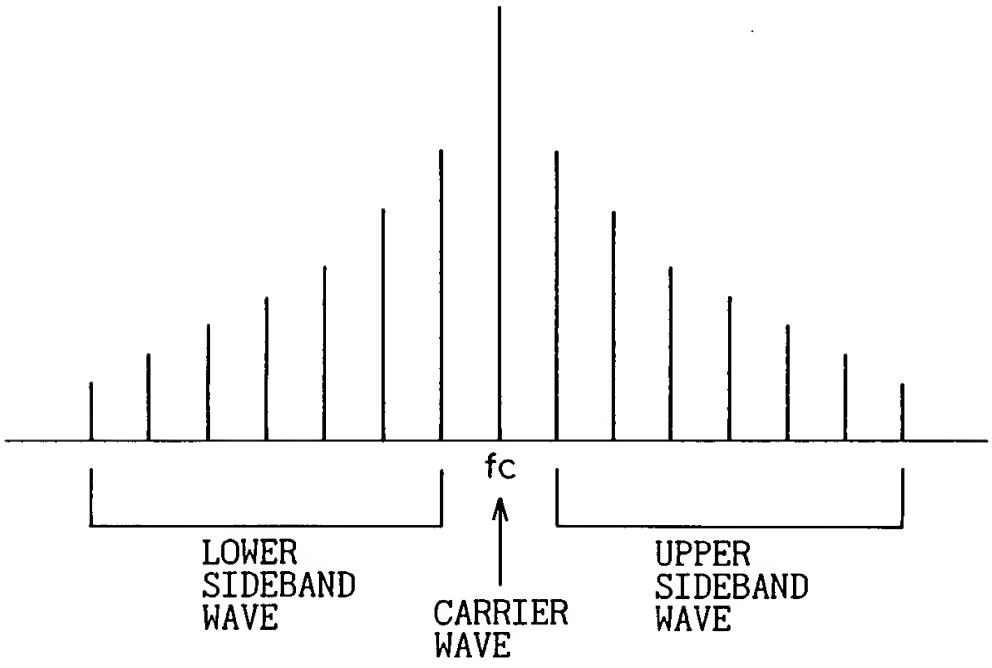

Fig.7

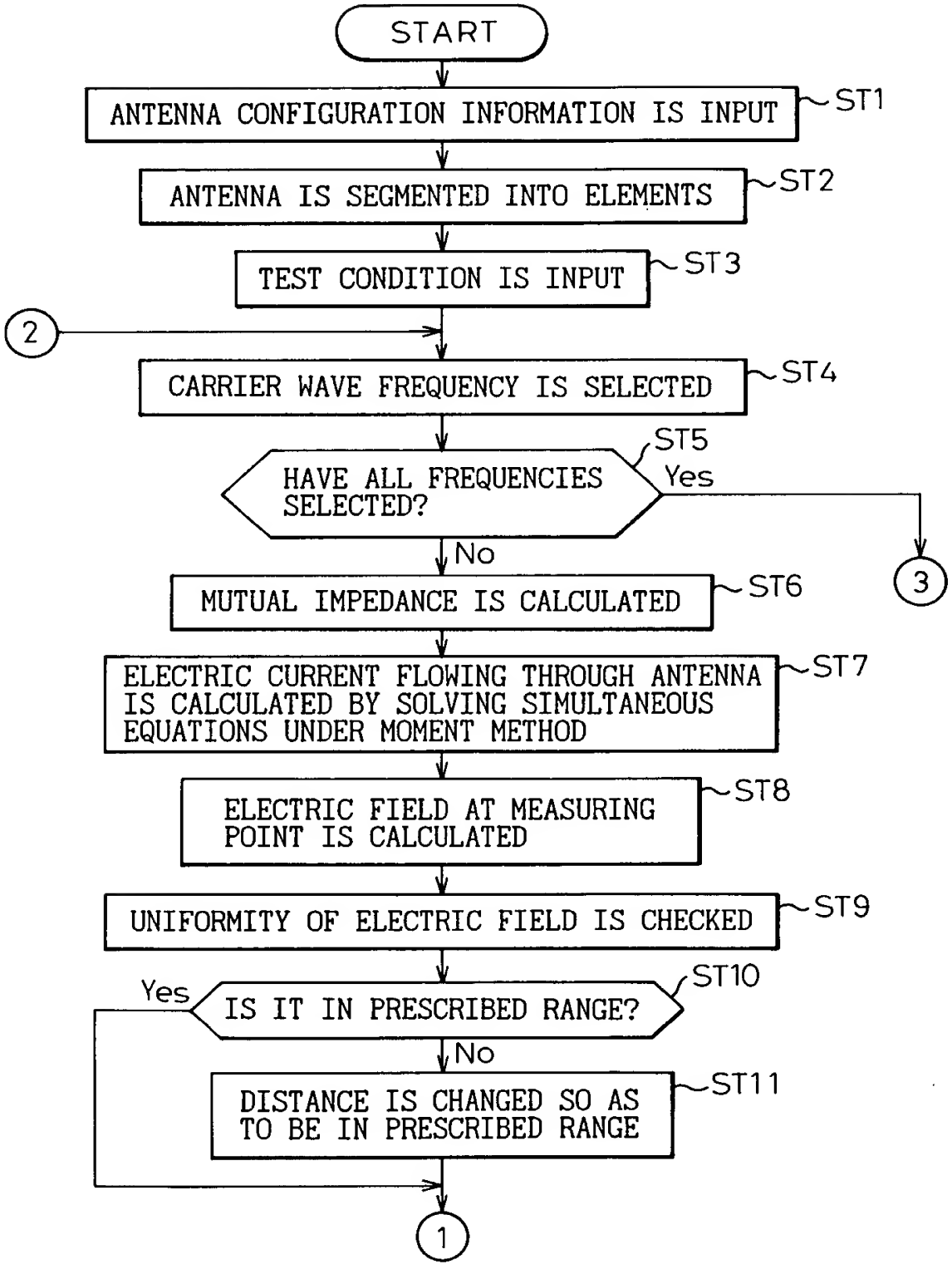

Fig.8A

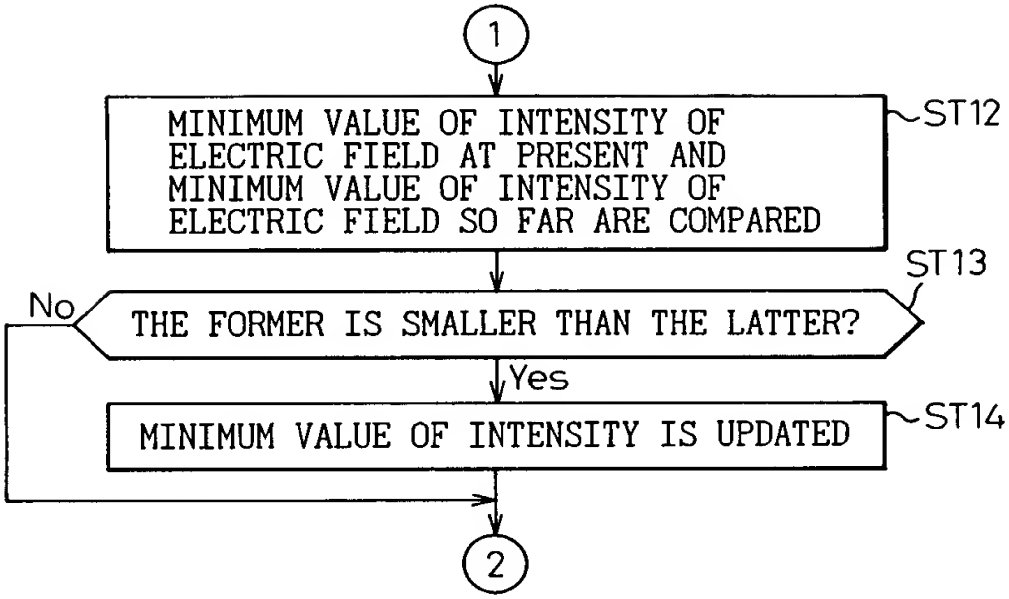

Fig.8B

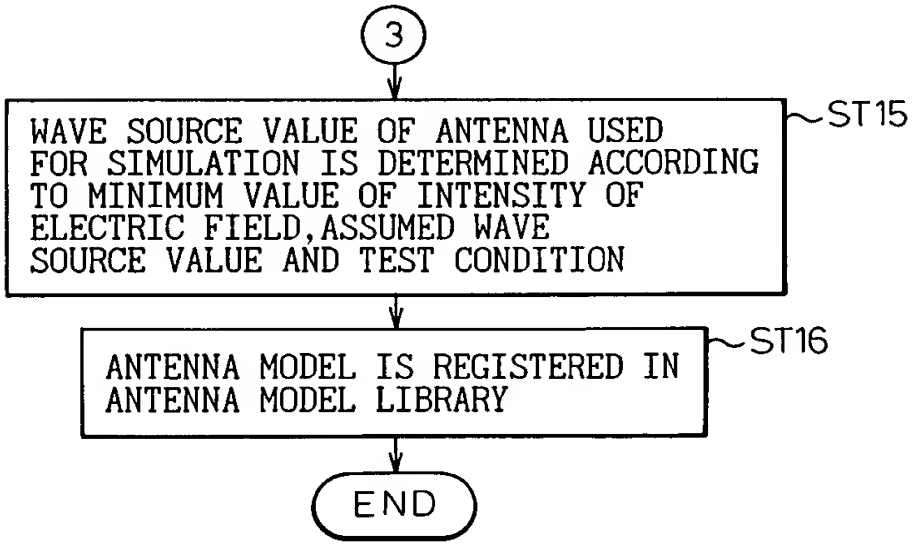

Fig.9

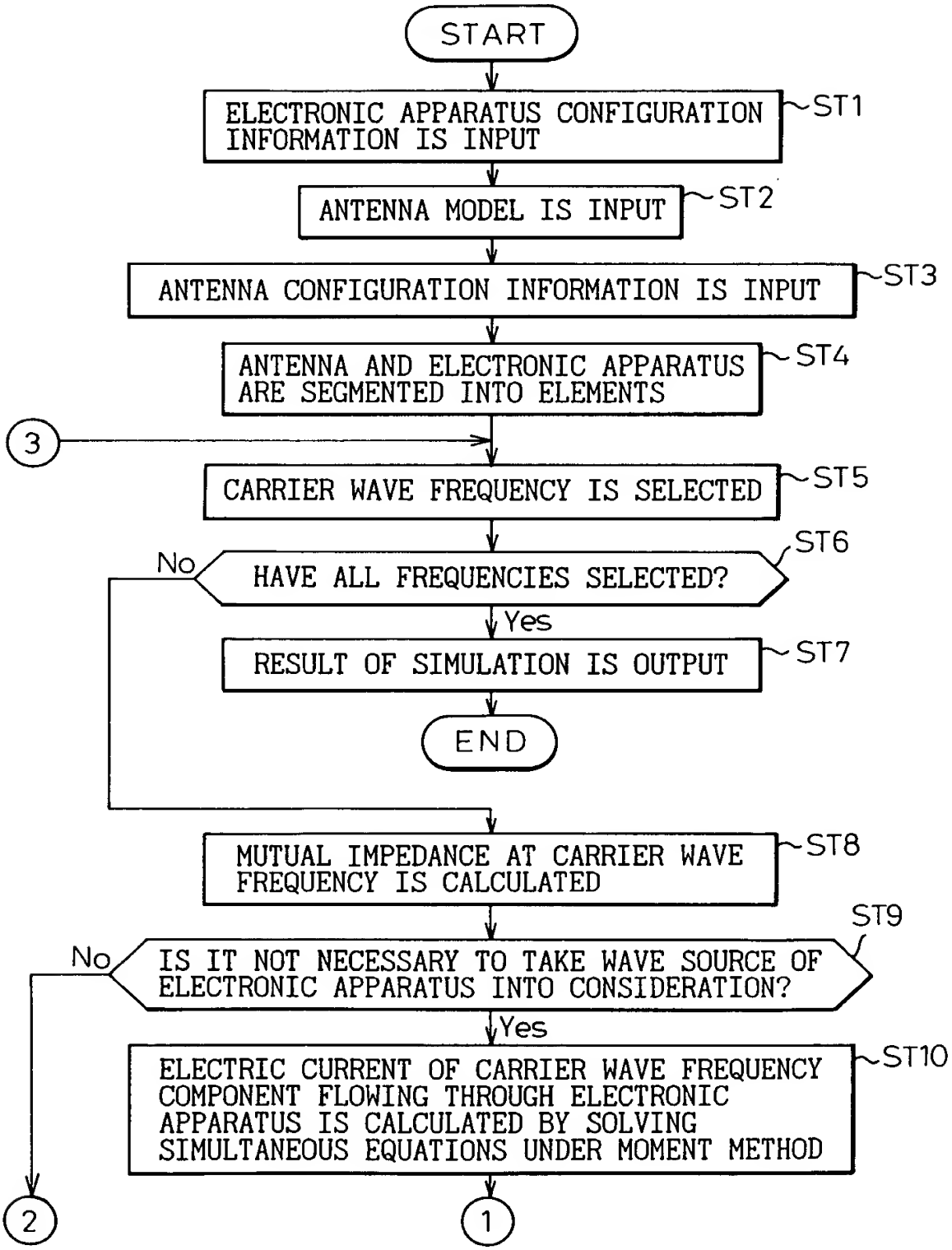

Fig.10

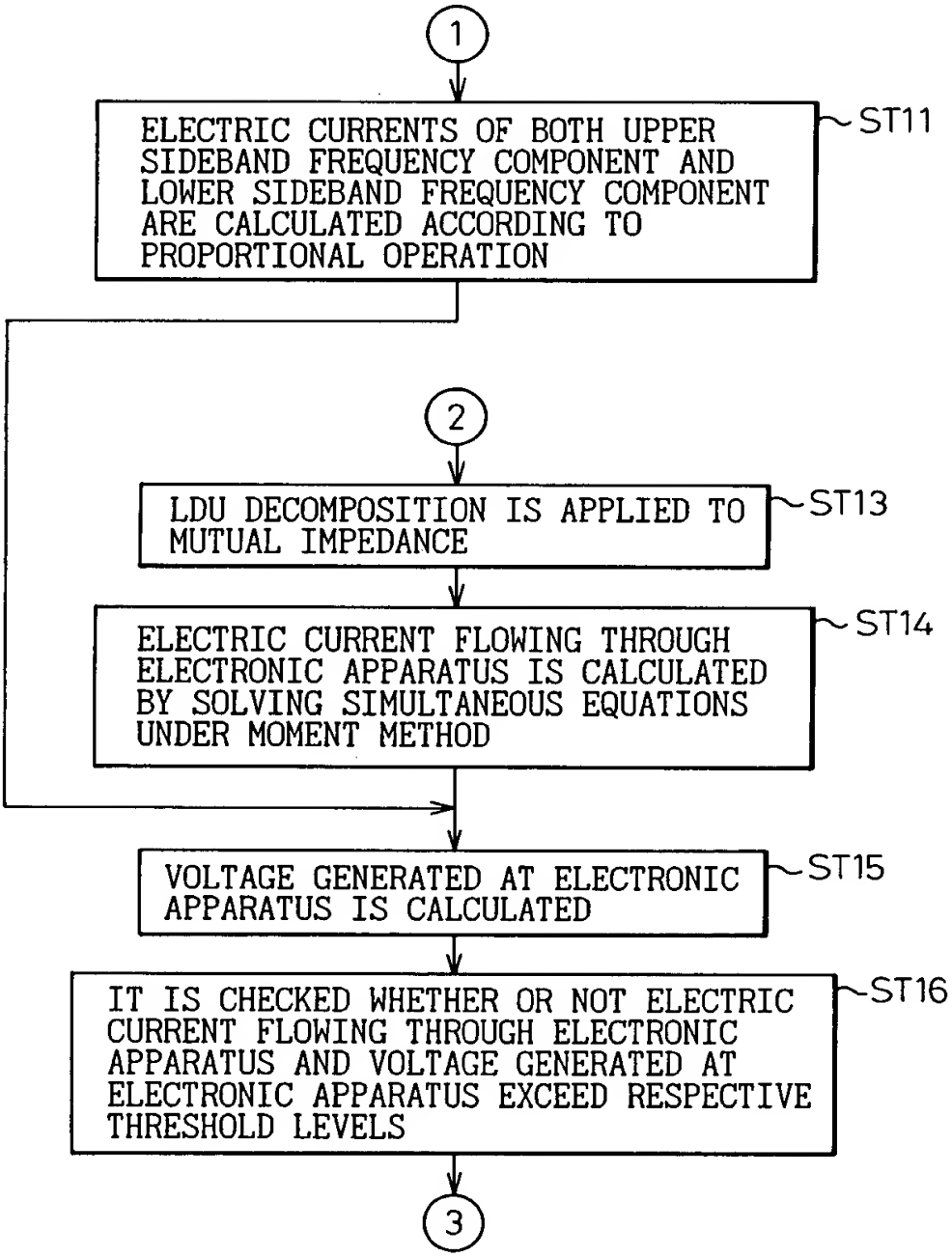

Fig.11

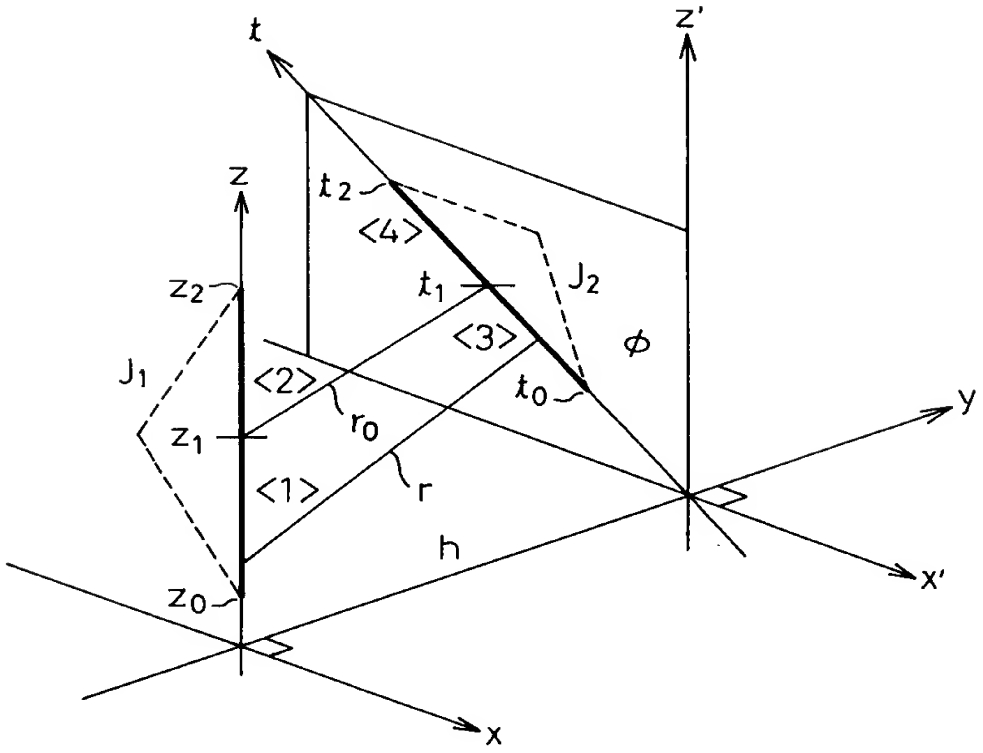

Fig.12A

$$Z = j\omega \int_S \left[\frac{\mu}{4\pi} J_1 \, J_2 \cos\phi \frac{e^{-jkr}}{r} + \frac{1}{4\pi\varepsilon} \rho_1 \, \rho_2 \frac{e^{-jkr}}{r} \right] ds$$

Fig.12B

$$Z_{13} = \frac{j\omega\mu}{4\pi \sin kd_1 \sin kd_3} \int_{t_0}^{t_1} \int_{z_0}^{z_1} [\sin k(z-z_0) \sin k(t-t_0) \cos\phi_1 - \cos k(z-z_0) \cos k(t-t_0)] \frac{e^{-jkr}}{r} dz dt$$

$$Z_{14} = \frac{j\omega\mu}{4\pi \sin kd_1 \sin kd_4} \int_{t_1}^{t_2} \int_{z_0}^{z_1} [\sin k(z-z_0) \sin k(-t+t_2) \cos\phi_2 + \cos k(z-z_0) \cos k(-t+t_2)] \frac{e^{-jkr}}{r} dz dt$$

Fig.13

MUTUAL IMPEDANCE

ELECTRIC CURRENT

N: NUMBER OF ELEMENTS

WAVE SOURCE

$$\begin{bmatrix} Z_{11} & Z_{12} & Z_{13} & \cdots & Z_{1N} \\ Z_{21} & Z_{22} & Z_{23} & \cdots & Z_{2N} \\ Z_{31} & Z_{32} & Z_{33} & \cdots & Z_{3N} \\ \vdots & \vdots & \vdots & & \vdots \\ Z_{m1} & Z_{m2} & Z_{m3} & \cdots & Z_{mN} \\ \vdots & \vdots & \vdots & & \vdots \\ Z_{N1} & Z_{N2} & Z_{N3} & \cdots & Z_{NN} \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ I_3 \\ \vdots \\ I_m \\ \vdots \\ I_N \end{bmatrix} = \begin{bmatrix} V_1 \\ V_2 \\ V_3 \\ \vdots \\ V_m \\ \vdots \\ V_N \end{bmatrix}$$

Fig.14

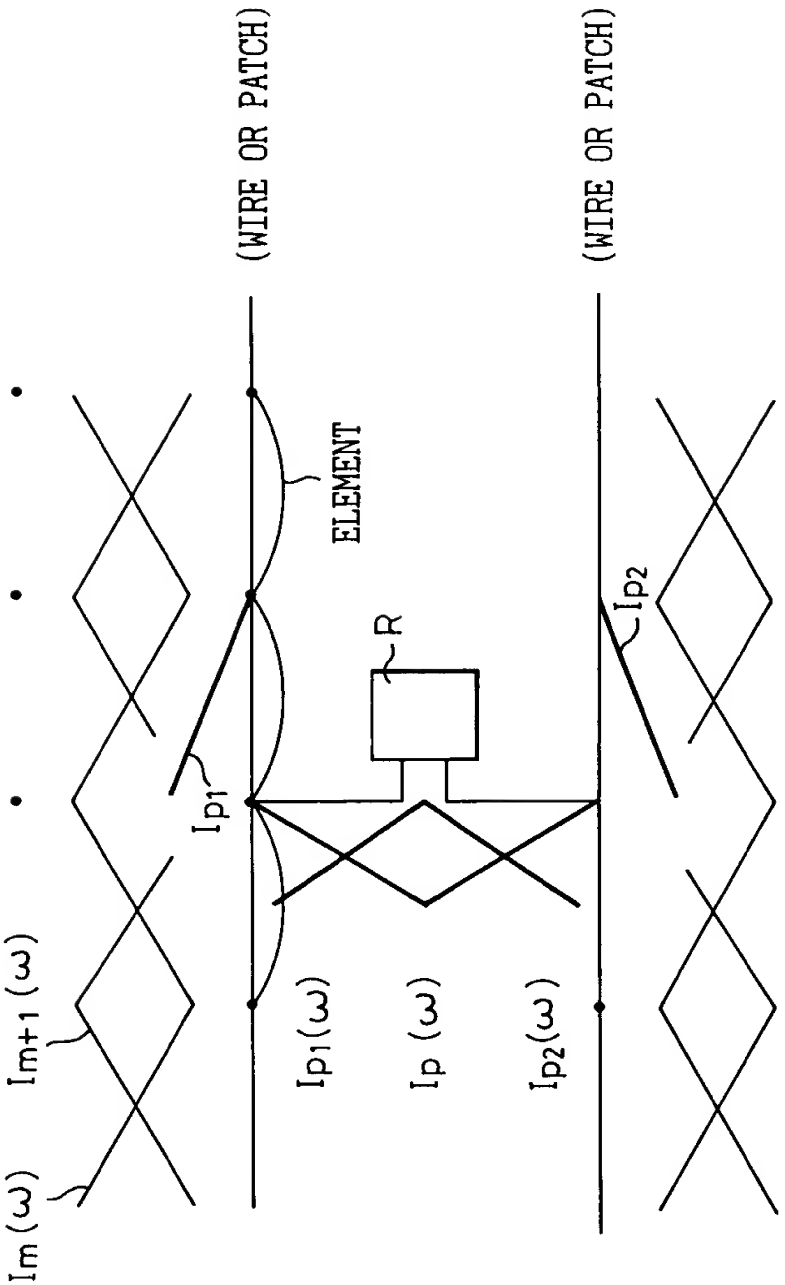

Fig.15A

$$Ip(Z_{pp}+R)+Ip_1\ Z_{pp}+Ip_2\ Z_{pp2}+\sum_{n=1}^{M} I_n\ Z_{pn}=0$$

Fig.15B

$$Ip = \frac{-1}{Z_{pp}+R}\left[Ip_1\ Z_{pp1}+Ip_2\ Z_{pp2}+\sum_{n=1}^{M} I_n\ Z_{pn}\right]$$

Fig.15C

$$Vp = Ip\ R = \frac{-R}{Z_{pp}+R}\left[Ip_1\ Z_{pp1}+Ip_2\ Z_{pp2}+\sum_{n=1}^{M} I_n\ Z_{pn}\right]$$

Fig.16

$$Z = LDU = LD^{t}L =$$

$$\begin{bmatrix} 1 & 0 & \cdots & 0 \\ \ell_{21} & \ddots & \ddots & \vdots \\ \vdots & \ddots & \ddots & 0 \\ \ell_{n1} & \cdots & \ell_{nn-1} & 1 \end{bmatrix} \begin{bmatrix} d_{11} & 0 & \cdots & 0 \\ 0 & \ddots & \ddots & \vdots \\ \vdots & \ddots & \ddots & 0 \\ 0 & \cdots & 0 & d_{nn} \end{bmatrix} \begin{bmatrix} 1 & \ell_{21} & \cdots & \ell_{n1} \\ 0 & \ddots & \ddots & \vdots \\ \vdots & \ddots & \ddots & \ell_{nn-1} \\ 0 & \cdots & 0 & 1 \end{bmatrix}$$

Fig.17

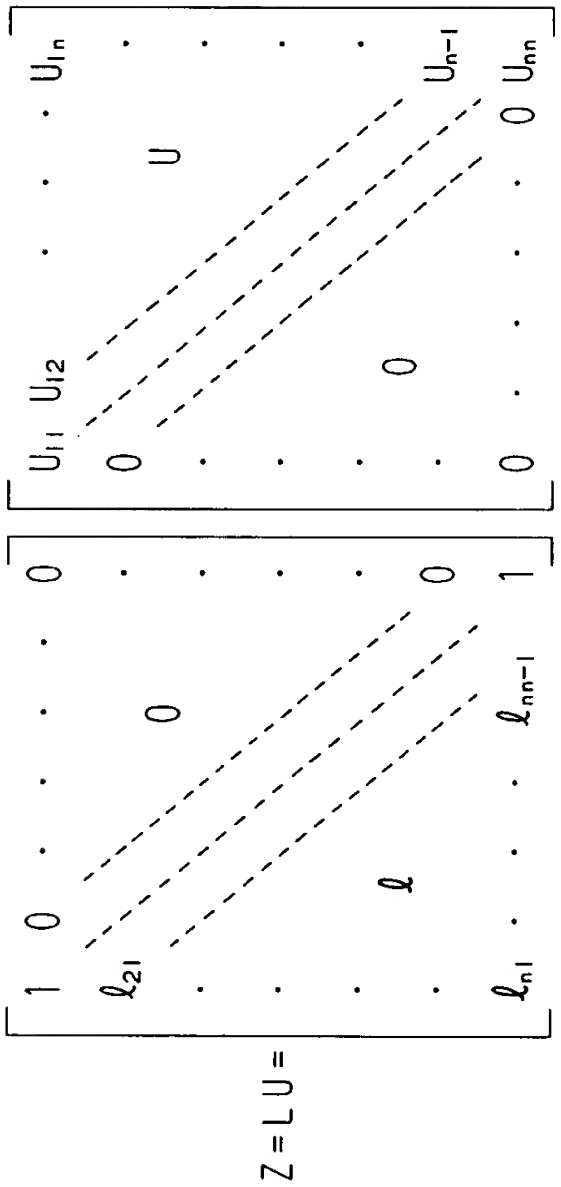

Fig.18

$$\begin{bmatrix} Z^{o}c,c & Z^{o}c,d & B^{o}c,d \\ Z^{o}d,c & Z^{o}d,d+Z^{d}d,d & B^{o}d,d+B^{d}d,d \\ B^{o}d,c & B^{o}d,d+B^{d}d,d & -Y^{o}d,d-Y^{d}d,d \end{bmatrix} \begin{bmatrix} Ic,n \\ Id,n \\ Mn \end{bmatrix} = \begin{bmatrix} Vi \\ 0 \\ 0 \end{bmatrix}$$